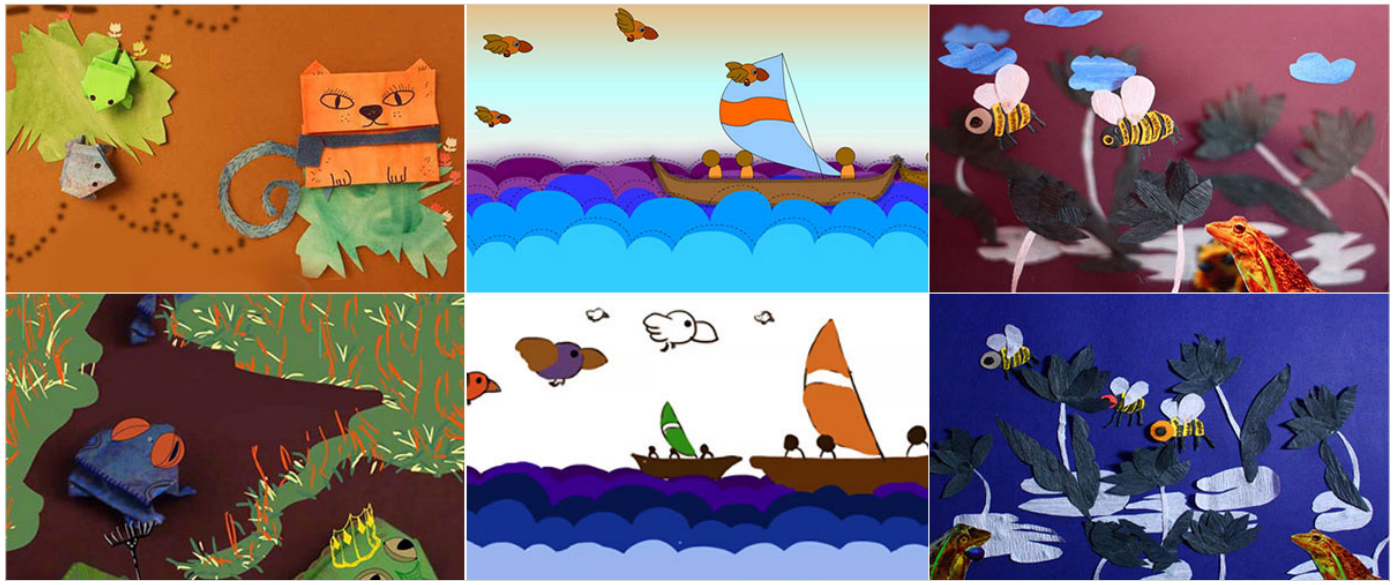
Design Course

Cut - Out Animation

Manual-Digital Animation Technique

by
Prof. Phani Tetali and Geetanjali Barthwal
IDC, IIT Bombay



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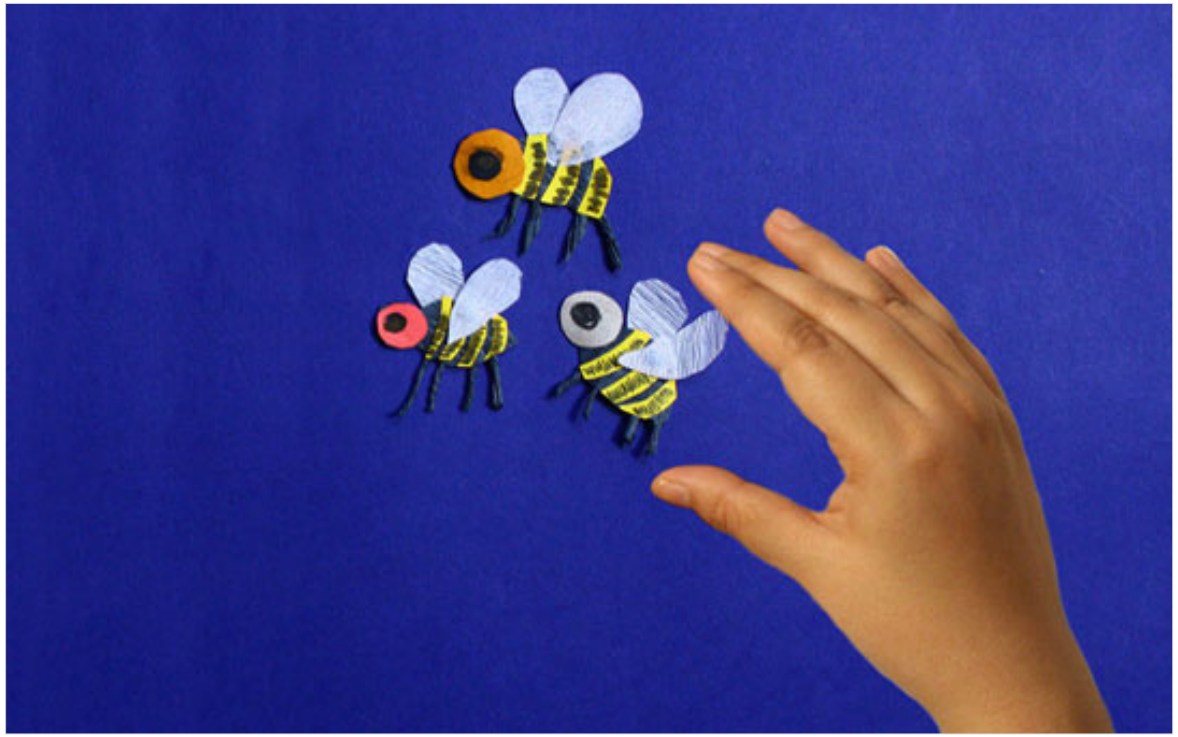
Introduction

Cut out animation is type of stop-motion animation which is produced by moving 2-dimensional pieces of materials (paper or cloth) on a flat surface or in a digital environment. It is one of the oldest and simplified animation techniques.

Types of cut-out animation explained here are:
- Cutout Manual Method
- Cutout Digital Method

Cut-out Manual Method:
Manual Method includes cut-outs of drawings into different pieces arranged over flat surface, moved manually and repositioned to simulate animation.



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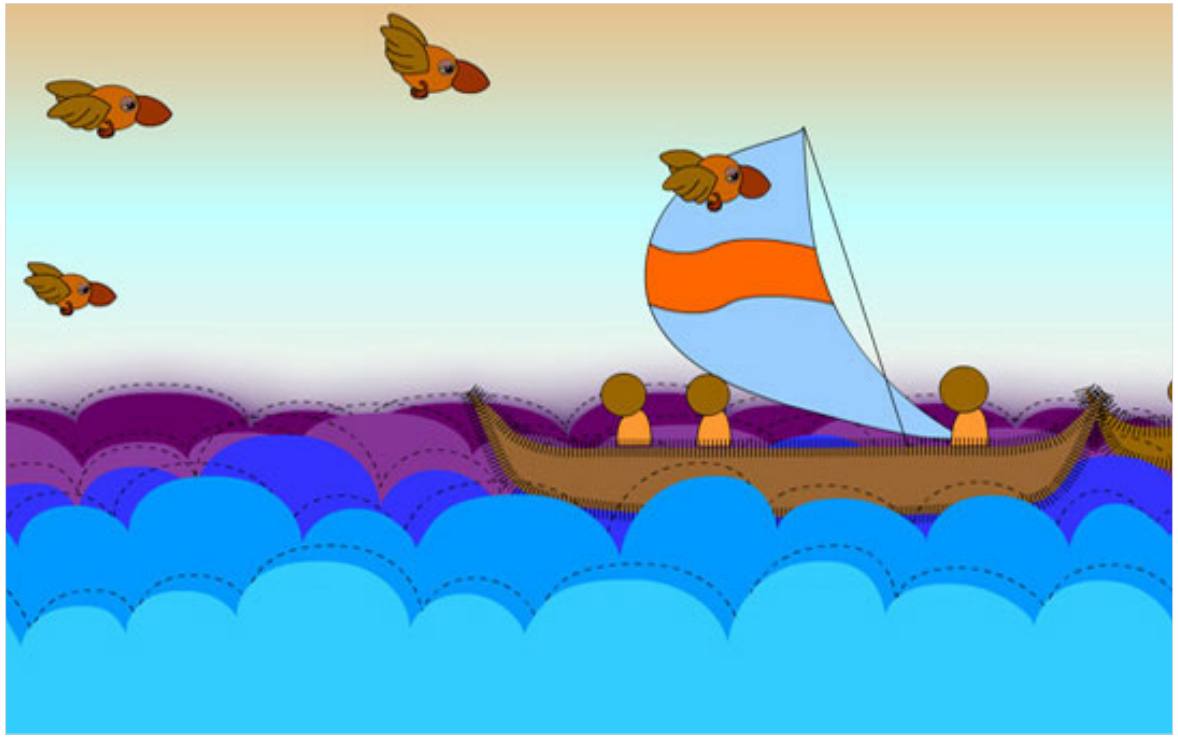
Cut-out Digital Method:
Digital Method is where animation produced in cut-out style using computers, drawing cut-out shapes digitally and giving illusion of 3D.



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Cutout Manual Method

Introduction

History

Stages

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Introduction

Cut-out Animation is one of the oldest and simplified animation techniques, having many forms and variations. As the name suggest 'Cut-out' is actually the Cut-outs of drawings into different pieces arranged over flat surface, moved manually and repositioned to simulate animation.

It involves producing animations using 2D characters, props and scenes, cut from materials such as paper card or fabric. It can be colored paper, white paper with drawing or pieces pasted on it, even photographs of people and animals to make it seem as if they are talking or moving often resulting in a 2D marionette effect. One of the earliest animated feature films were cutout animations made by Quirino Cristiani, as is the world's earliest surviving animated feature.

Cut-out Animation belongs to the stop motion animation family. Cut-out is the technique of making animation style and stop motion is the technique of capturing this application. In this technique the animator moves the cut-out pieces under a fixed camera with a fixed focus shot. The frames are then shoot in "straight ahead", "frame by frame" as they come. It may be called as direct under the camera, which is done completely manually.

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Cut-out animation has many forms and variations which involves producing animations using 2-D characters, props and scenes cut from materials, such as paper, card or fabric or using the silhouettes. The cut-out character is divided into smaller pieces, which are kept together to move them in small steps, taking single picture with camera at each step, to create the illusion of movement.

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History

Yuri Norshtenyn is a famous Russian Animator of many famous animation short films "Hedgehog in the Fog", "The Heron and Crane" and "Tale of Tales". His cut-out animation has a fine detailing and technique of showing character in 3D by multiple glass frames.

To make fast and funny films, animator Terry Gilliam used the roughness of the cut-out techniques by using parts of photographs and a lot of ready-made graphic materials. In the 1970's the pilot episode of 22 minutes for South Park was made by Matt stone and Trey Parker in old fashioned way which took 70 days to complete.

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During 1926, the silhouette animation filmmaker Lotte Reiniger showed her beautiful skill and talent in, "The Adventures of Prince Achmed", which involved manipulated cutouts made from cardboard and thin sheets of lead, were clicked under the camera. To tell a full, feature-length story she used elaborate paper silhouettes.

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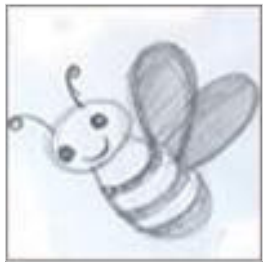
Stages

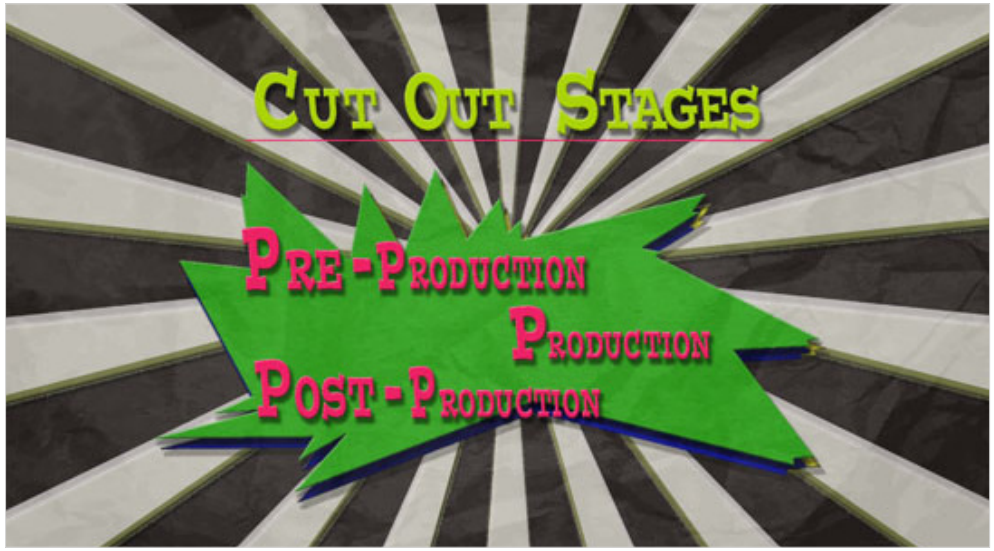
Animation is always distributed in stages. In Paper cut out the three stages are Pre-production, Production and Post production.



Pre-production

Production

Post Production



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Pre-production

Pre-production means making the blue print of the animation which is further divided into:
a) Story and Story Boarding
b) Cut-out requirements
c) The Stop motion stand
d) Stop motion Camera.

a) Story and Story Boarding:
An animation movie can recreate an imaginary world. One could even write a few sentences for an animation short. It doesn't need to have an elaborate thinking process involved in sci-fi movies; on the contrary it could be funny or dream like. For instance, bees buzzing, or taking in the nectar of lotus flowers, frogs are also in search of the food, simple sentences like these could be the inspiration for a paper cutout animation.

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Character design, size, background, the staging of character in a particular frame and the animation needs to be finalized in this stage. One needs to sketch almost everything whatsoever is going to be captured in the frame, like the character's poses or expressions provided whether the details are required or not, background and the staging of character with respect to background.

Always make 4 to 5 iterations of the character design and background, this is where you can imagine and bring out the unusual.

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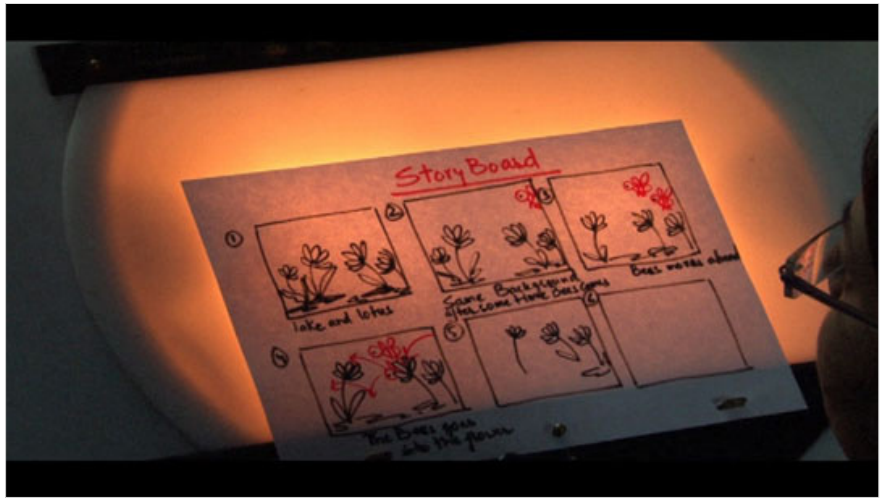
While sketching the drawings, keep in mind the aspect ratio. Follow the same aspect ratio by drawing inside the blocks of the ratio you want like 4:3 or 16:9.

For more information regarding aspect ratio you can check –
Design course on Animation Technicalities on http://www.dsource.in

Storyboarding supplies the animator with full information about the animation; hence the preparations should be done in the start of the project. After writing a story, a storyboard is prepared, which gives a rough idea of the placement, size and timing of the animation. It is important to know that a good visual enhances a story, so keep the story simple, because a well timed animation gives a much more better result.



b) Cutout Requirements:
Paper is the material mostly used for cutout. The paper may be thin or hard, colored or white, printed or even any cardboard could be used for making 2D characters and props etc. Magazine, newspaper and photograph cut-outs are available in abundance, which can be used in animation. Fabrics of different texture, color or style can be the other options. One can also experiment with the materials and their visuals; the animator can use anything to maintain the illusion of a 2D surface.

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Sometimes magazines or newspaper show white edges owing to the thickness of the edge, color those edges with black marker so they don't look like of a different frame.

Blue tack is used to glue the different cutout pieces temporarily. Due to its elastic nature it also allows movement for moving frame by frame.

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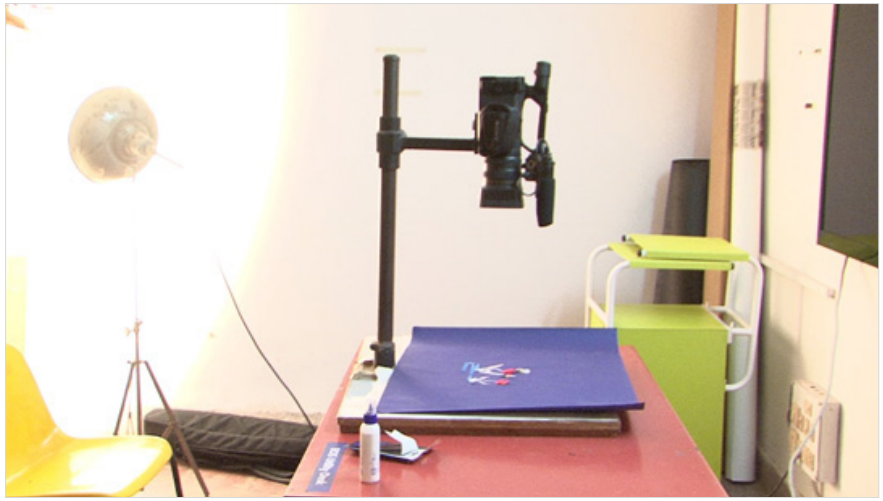
c) The Stop Motion Stand:
The stop motion stand is actually a heavy iron rod stand, standing erect on a wooden board. The stand has a hinge, to attach the still camera, facing downward to capture the frame kept above the wooden board. With this set up good lighting sources and space is essential.



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d) Stop Motion Camera:
Stop motion is the technique of capturing cutout animation. A Still camera (Canon/ Nikon/ Sony etc.) is used to which has Prime lens or any 18-55mm lens. The camera setting should be at manual mode so that any light adjustment doesn't affect the shoot. Customizing the color temperature, ISO, brightness and contrast are some of the important requirements before the shoot. The external light sources are also required to maintain the light sources. Fixing the camera on the stand, framing the cutout work one can start the pose to pose stop motion animation.

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Production

Production process is about putting imagination into actions. As the light adjustments are already set one can start working.

Start the animation by putting the pieces together with blue tack then clicking them frame by frame. This illusion of movement will animate the paper cut-outs. This illusion of movement will animate the paper cut-outs. The movement also depends on the frame rate you are choosing, weather it is 24 frames per seconds or 12 frames per seconds etc. Choose the aspect ratio for camera. One should not move the camera up or down, right / left, zoom in / zoom out, as it may change the staging or the aspect ratio. The naming for the shots should be easy with a proper name to avoid confusion.

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Few examples are shown below:

Example - 1:

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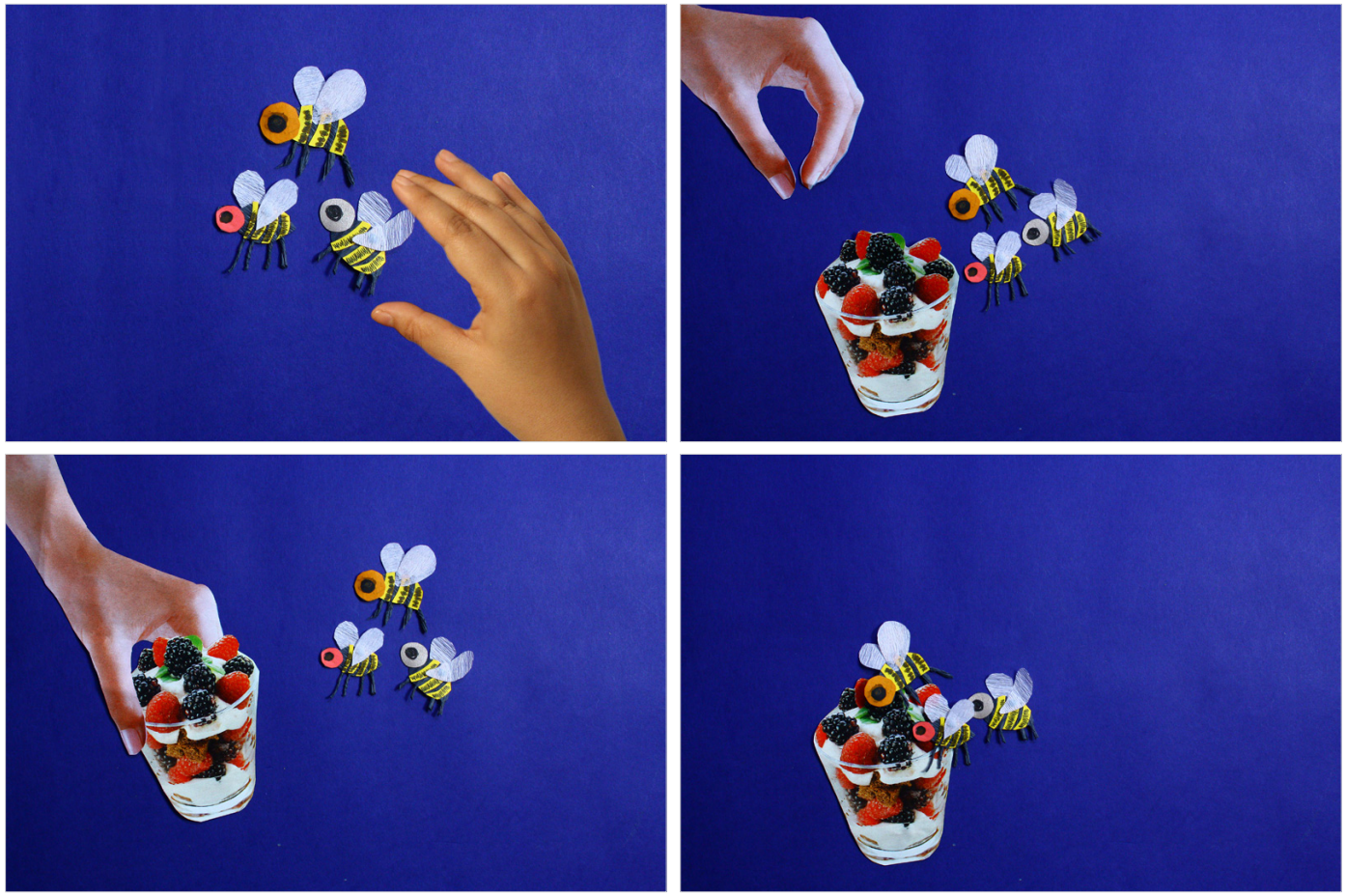
Example - 2:



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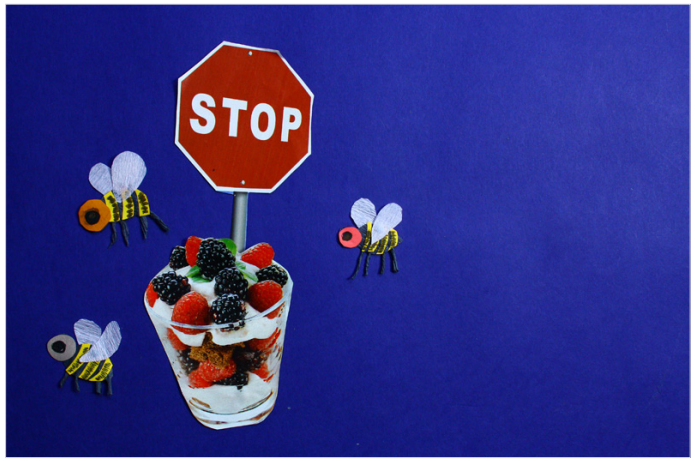

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Example - 3:

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Post Production

The post production process doesn't require much of the work because everything is shoot.

Drag the images on the timeline of any editing software. As per the timings of the animation 24 frames per second adjust the default size of the images. Now, with a proper background sound; export the cutout movie.

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Below are the few examples of Manual cut-out:

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Example - 2:

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Example - 3:

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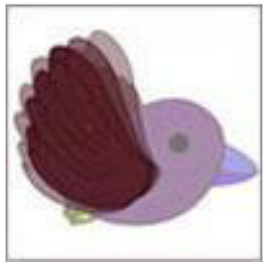
Cutout Digital Method

Introduction

History



Stages

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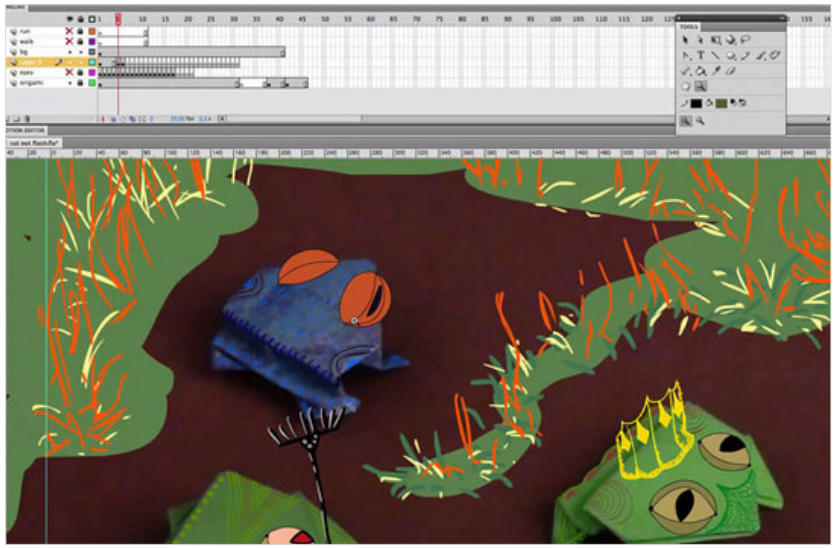
Introduction

Cut-out animation was taken to a whole new level of madness and creativity when digital technology arrived. The possibility of unlimited mix and match with the fastest possible time and unimaginable results along with the power of replication, deletion and to undo the mistakes are the added advantages to the hard hand working animator.



Computer cut-outs have the immense advantage of being able to go back and forth on the timeline and work with key frames, in the "pose to pose" method. Nowadays animators often produce animation in the cut-out style using computers, drawing cut-out shapes digitally and giving illusion of 3d with lots of fine detailing and short method of finishing as early as possible. Cut-out animation is a popular technique because it saves production time and leads to smaller file sizes when compared to full cel animation. These days cut-out is mostly used for commercial market on internet and television. The characteristic jerky style is changed into its quality, and not limitation.

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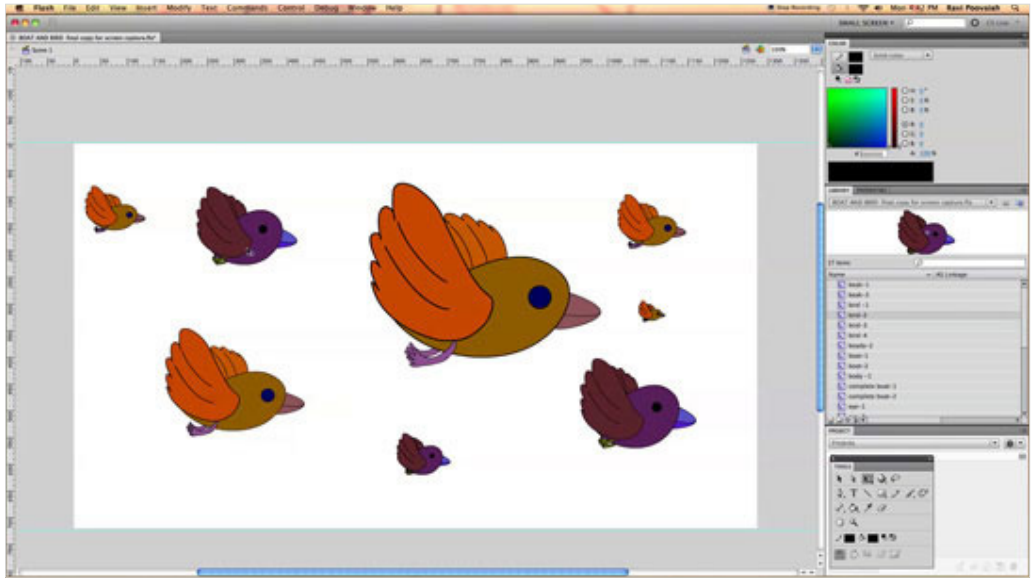
Cut - Out Animation

Manual-Digital Animation Technique

by
Prof. Phani Tetali and Geetanjali Barthwal
IDC, IIT Bombay



Source:
https://www.dsource.in/course/cut-out-animation/cutout-digital-method/introduction

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Cut-out animation got a whole new life when Flash came for animation. Flash is a web authoring tool making animation simpler for everyone who wants to try their hands on it. Flash today is used for everything between banner web animations to full feature films, like that of "Walts with Bashir" by director Yoni Goodman.

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History

The origin of this form of cut-out art is inspired from puppet shows. Puppetry is the ancient art of moving puppets hand held or stick manipulated in front of audiences, with advancement of technology it has been recorded and filmed. From the mind of the creative and innovative thinkers this art has been converted into cut-out animation technique, which is again, is simulated into software's nowadays. Software's like adobe after effects also named it as puppets tool and other software's have their own naming conventions. In Indian history as well puppets shows has been the major source of entertainment and education for the masses.

This art form has its characteristics, which makes it different from others:
• It is hand held, on sticks, threads, hand, wood etc.
• It may have detailed visual or dark silhouettes of black colored.
• It is an art of storytelling with characters involved.

Today, cutout-style animation is frequently produced digitally, with scanned images or vector graphics taking the place of physically cut materials. South Park is a notable example of this paradigm shift of manual to digital, since its first episode slowly from paper to computer.

Other notable example includes more recently—Charlie and Lola written and illustrated by Lauren Child and produced by Andrew Zein and Michael Carrington. The television series uses a collage style of animation which captures the style 2D cel animation, paper cutout, fabric design, real textures, photomontage, and archived and subsequently animated in a software application called CelAction2.

Some of the advantages of digital cutout over hand drawn animation and traditional cutout animation are as follows:

• Digital cut-out is a popular technique as it saves production time and leads to smaller file sizes.
• It can be done single handedly with the help of software.
• It doesn't require paints, colored paper, magazines, camera or any other art material.
• It has less production work compared to the others.

On account of the advantages of low cost and faster production, it's been used mostly for the web.

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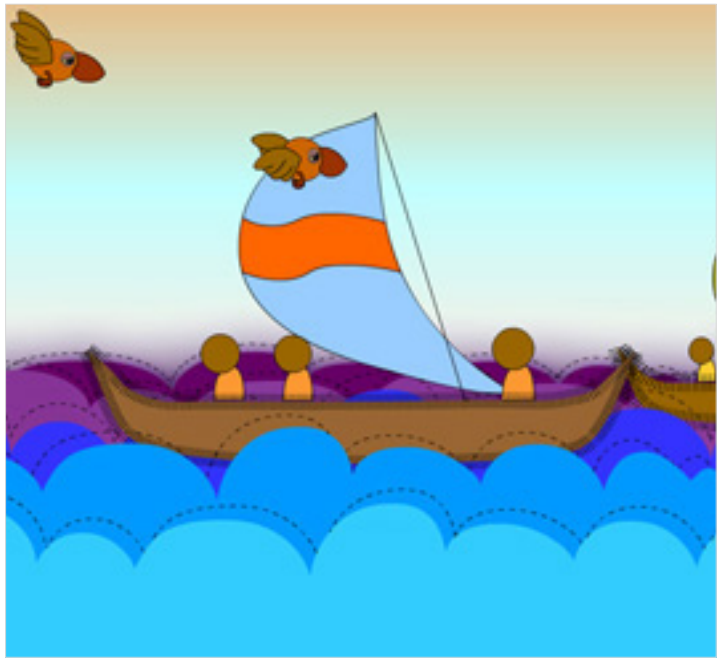

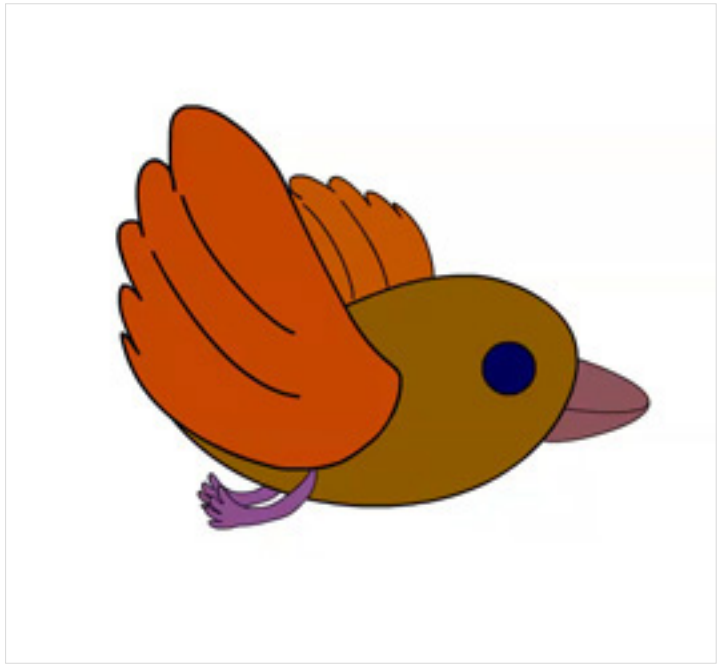

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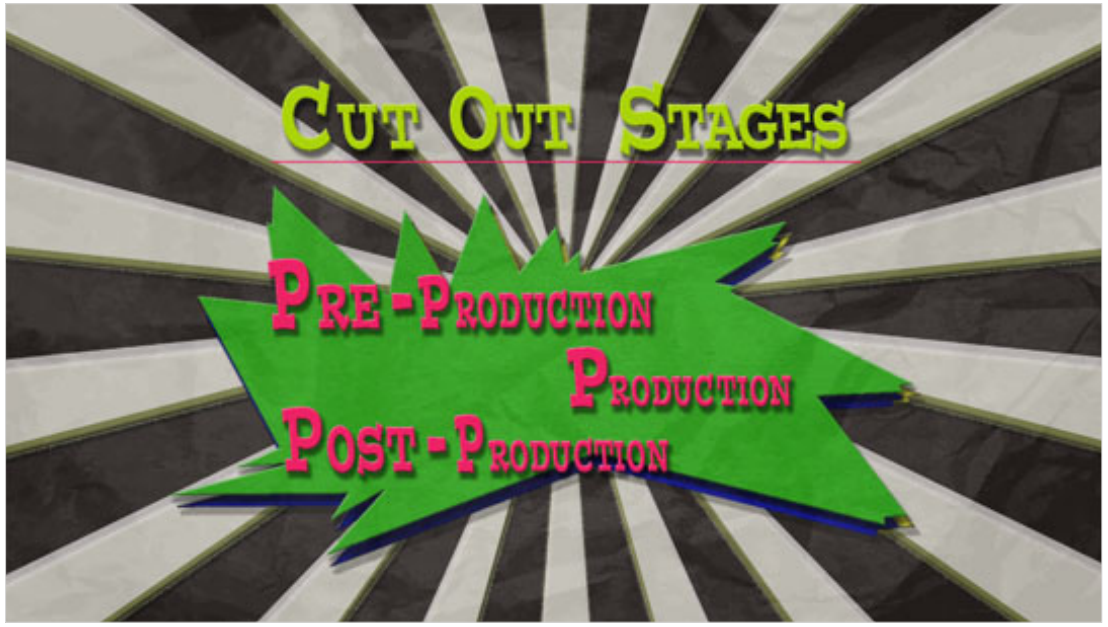
Stages

Pre-production

Production

Post Production



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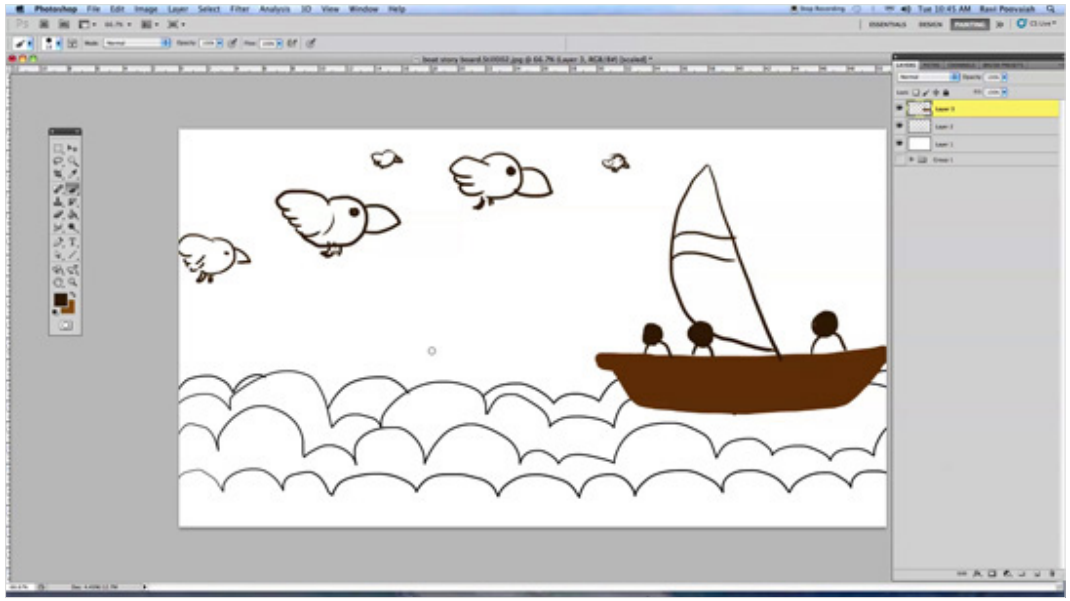
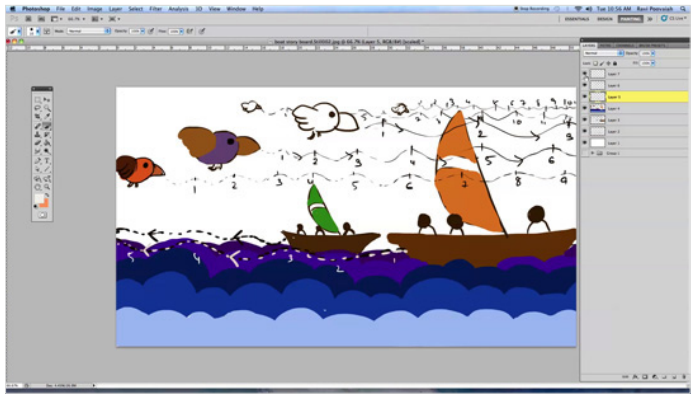
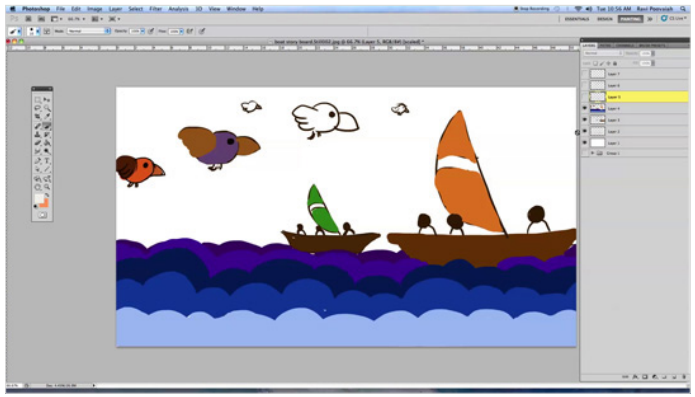
Pre-production

If you are trying cutout for the first time make simple stories. For instance, people sailing in the boat, birds flying in the sky, etc.



Sketch to gives details of color, size, composition and camera angle involved in a particular frame. You can also make a step-by-step storyboard with respect to the animation story.





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Production

In this stage we will create and animate the drawings step by step. See the tutorial for more information.

Animating Bird:
While doing cutout by manual method the most important characteristic is its jerky effect, which is considered to be a striking visual. This effect comes due to limited animation followed by usage of limited drawings. Once a character has been prepared by cut out it doesn't need more frames to animate, as it's needed in 2d hand drawn animation.

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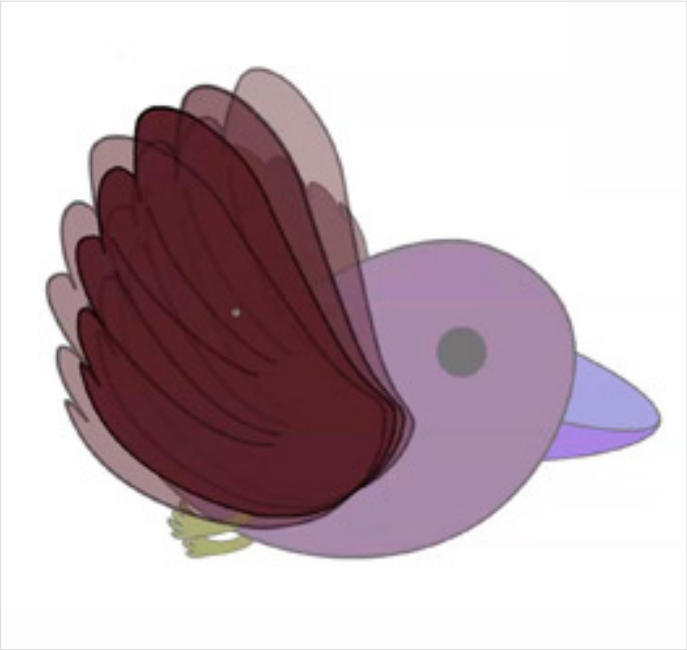

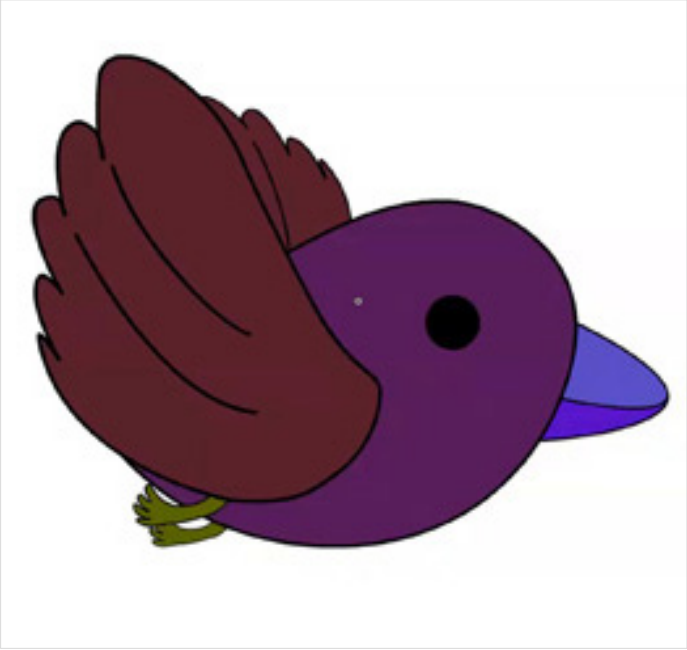

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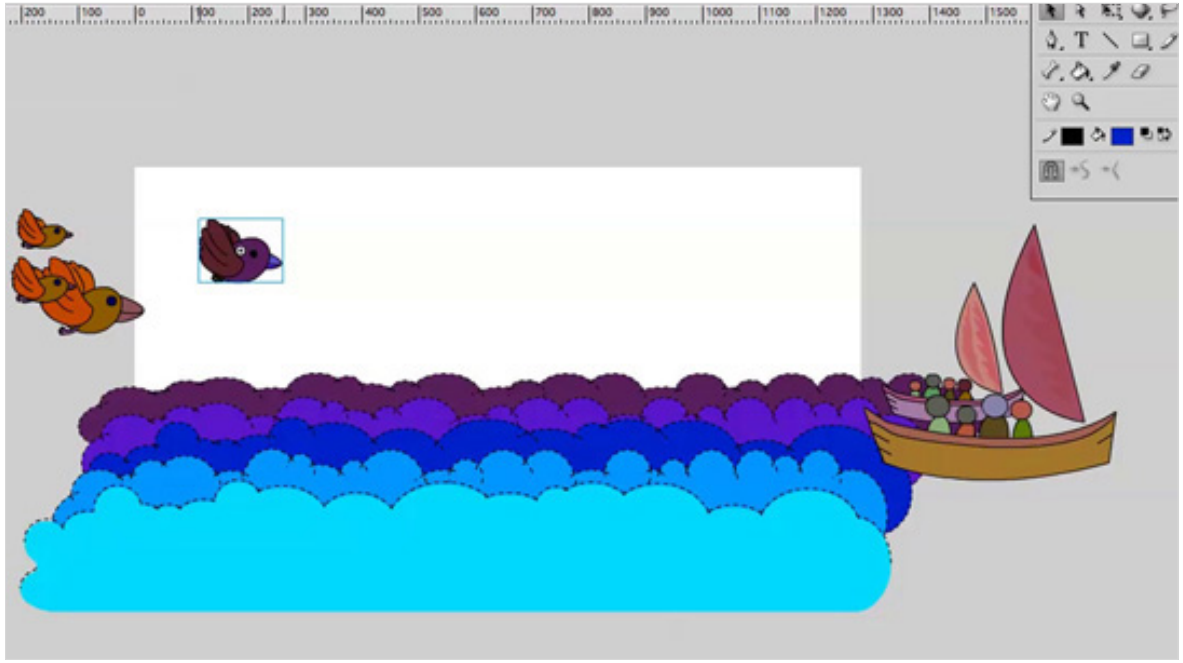
a) Movie Clip Animation:
A movie clip gives freedom to animate within itself by just changing the position. It can be reused as many times as needed. They have their own timeline, which is independent of the main movie's timeline.



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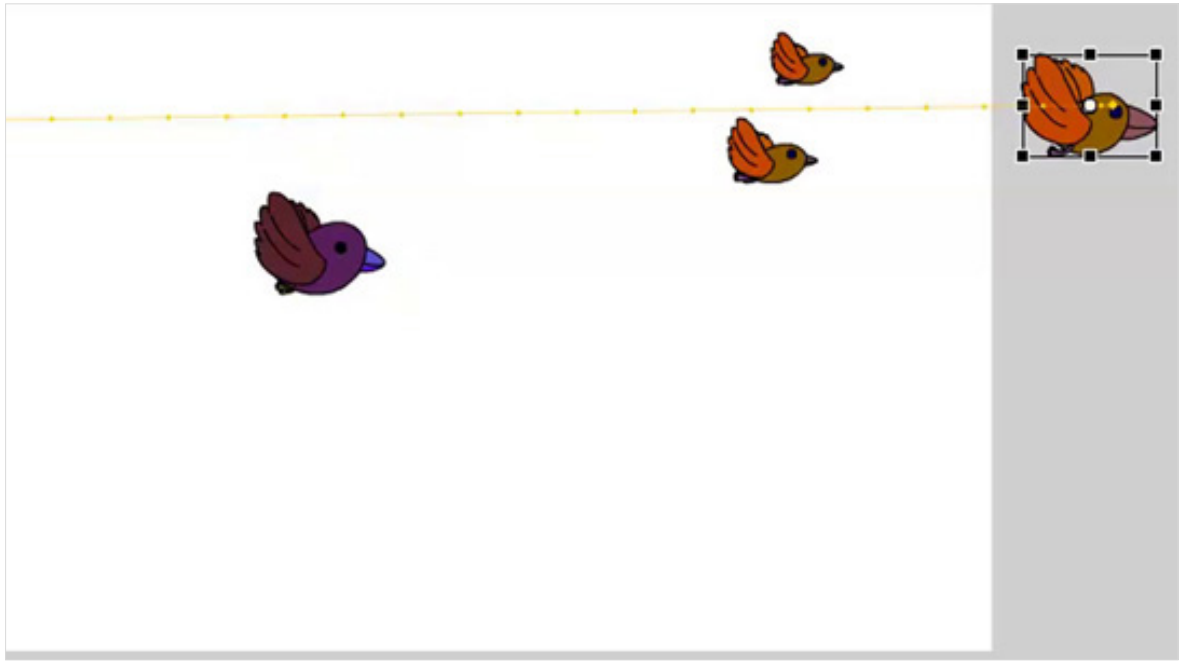
b) Tween the Animation:
Flash gives lots of tools and features to animate, amongst them. Motion tweening is the easiest. Giving motion tween in flash is the easiest way to animate anything. Insert key frame at position A, now drag the key frame at position B in the timeline where the object should stop. With a right click give motion tween, the time line turns blue and now finally move the object to the direction where you want to move in the workspace. Now if the path is going too linear we can again make a key frame on the time line, changing the position of the object in the workspace, which will follow the same path from point A to B.



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Post Production

In this stage after composting all the frames are exported in the SWF or the format provided by the software.

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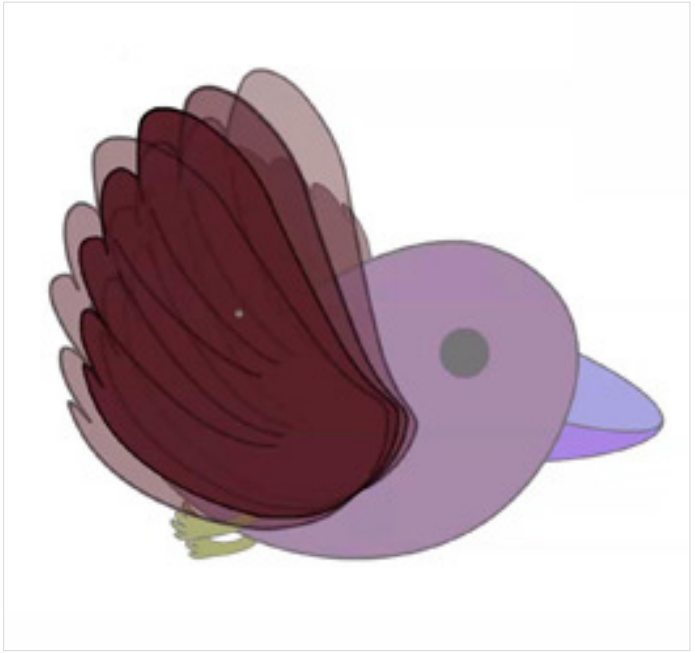

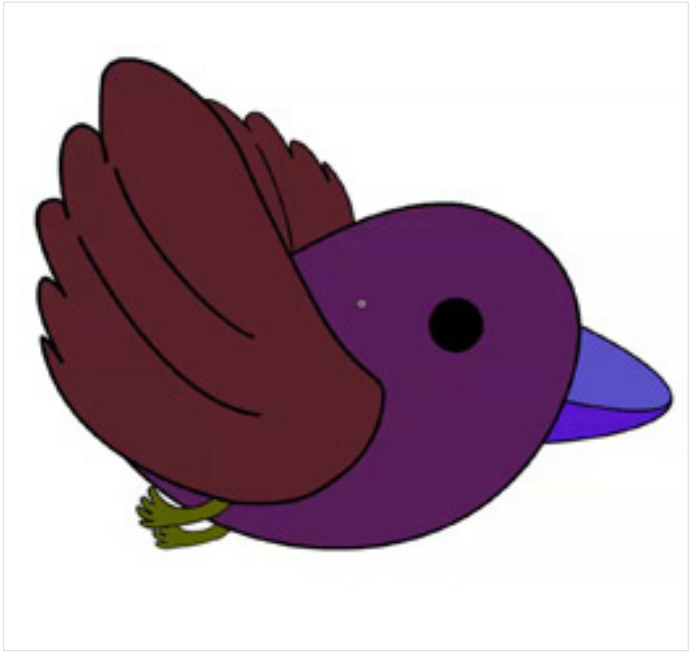

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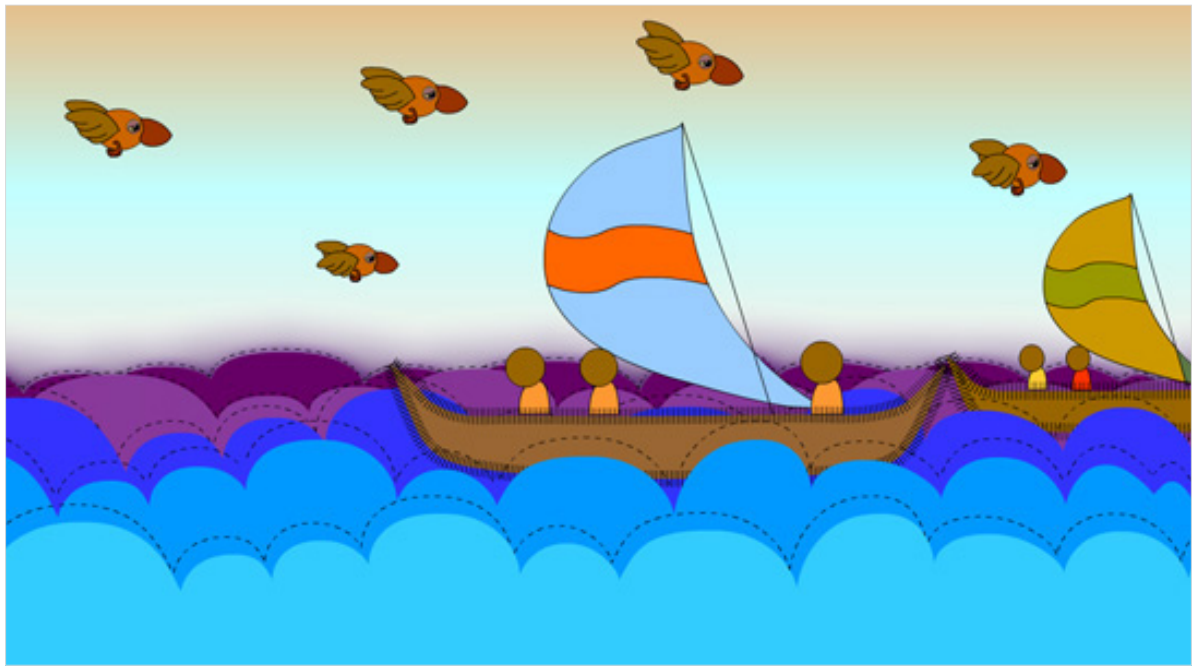

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Characteristics

• The character can carry very rich graphical treatment on their surface such as texture, etching effects shading and decoration. It is not a practical option in most hand drawn animations as it becomes too expensive and time consuming to replicate the details again and again across every drawing.

• The character is divided into smaller segments bring together the individual cut-out shapes and move them in small steps taking single pictures at each step to create the illusion of movement.

• It doesn't need post production touch up if done with proper planning.

• The most important is the jerky moving effect it produces which is considered to a striking visual style.

• Once a character has been prepared by cut out one doesn't need as many as frames to draw as needed in 2D.

• It requires less space and is less clumsy than the hand made cut out.

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Advantages

• The principle advantage of cut out, especially for a solo animator is that it requires many fewer drawings than full cell animation.

• No need of paints, celluloid sheets art materials, big studio setup big or skilled manpower is required.

• It is a personal experience where artists uses his her imagination by the range of subjects matter.

• It is easy and low cost animation which may have a big commercial advantage.

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Limitations

• Unlike cutout 2D has more smooth animation and is perfect to show fluidity in actions and rhythmic flow like morphing, transition etc.

• Any detail applied to a cut out shape will limit the angle at which animator can take a picture of the frame.

• Cut out animation doesn't work well for facial close-ups so dialogue that requires the lip movements of the character to be synchronized with recorded sound lip sync is rare with respect to its limitations.

• These techniques of course have limitations. They are flat and they must work across or up and down the screen in a flat plane. One can't simply walk a cut–out puppet towards camers in relation to fixed background or make it turn in three dimensions.

• Cut out animation is typically used for mimed stories.

• The most important is the jerky moving effects it produces that brings its own limitation of a striking visual style.

• Animators have more difficulty controlling movement with this style then in 2D animation, in which characters and scenes are drawn or painted on transparent celluloid sheets, so they need to plan the action accordingly.

• Cut out is also a highly personal experience, the animator essentially portrays character's mood or idea just by moving cut out shapes around over a flat plane.

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Links

Manual Cut-out Method:
• Animation Technicalites
http://dsource.in/course/animation-technicalities-part-1

• Lotte Reiniger films on You tube
http://www.youtube.com/watch?v=KxkIGXVwZTM
http://www.youtube.com/watch?v=25SP4ftxklg

• Terry Gilliam
http://terrygilliamweb.com/
http://www.youtube.com/watch?v=xs7WaL44_Iw
http://www.youtube.com/watch?v=SblXyoM8mao
http://www.youtube.com/watch?v=LMpXUd_kesA

• Yuri Norstein
https://www.youtube.com/watch?v=tW84w8_QAfU
https://www.youtube.com/watch?v=_Kvw_lQpfEU
https://www.youtube.com/watch?v=nKDeMBzXnpg
https://www.youtube.com/watch?v=oQ52H1YlOm4
https://www.youtube.com/watch?v=oW0jvJC2rvM

Music Tracks:
• Inverse (Balade) - by Afleurie
http://www.jamendo.com/en/track/156820/balade

• Ehma- Pizzicato - by various artist
http://www.jamendo.com/en/track/232/ehma-pizzicato

• Time Machine - by George Dragon
http://www.jamendo.com/en/list/a57770/time-machine#

• Tha alquemy of air - by Rafael Zacher
Album In This World by BABEL SIN FRONTERA
http://www.jamendo.com/en/track/688851/tha-alquemy-of-air-by-rafael-zacher

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Digital Cut-out Method:
Music:
• Frog croaking - by SoundBible.com:
http://soundbible.com/tags-frog.html

• Inverse (Balade)- by Afleurie:
http://www.jamendo.com/en/track/156820/balade

• Bella Ruse - by Bella Ruse:
http://www.jamendo.com/en/list/a56070/bella-ruse

• South park:
http://www.charlieandlola.com/website.asp

• Charlie and lola:
https://www.youtube.com/watch?v=MDbv2dqx2-0
http://www.charlieandlola.com/website.asp

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• Walts With Bashir – Animated documentry - by Arif Folman:
http://www.youtube.com/watch?v=ylzO9vbEpPg

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Video

Traditional Cutout Animation Part 1

Traditional Cutout Animation Part 2

Flash Animation Part 1

Flash Animation Part 2

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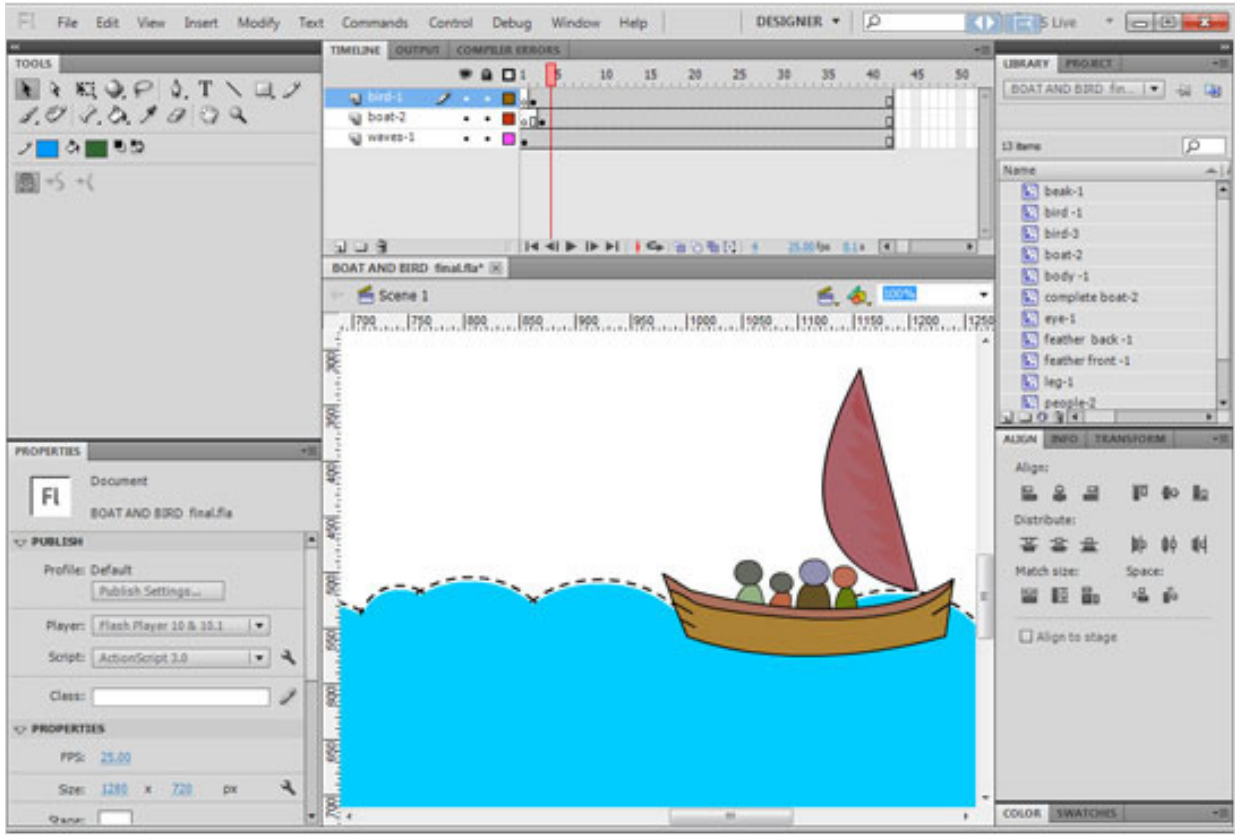
Assignment

Assignment:
Animate the above scene using Flash File given below.



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Contact Details

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